



Active Risk Allocation

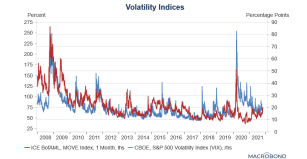
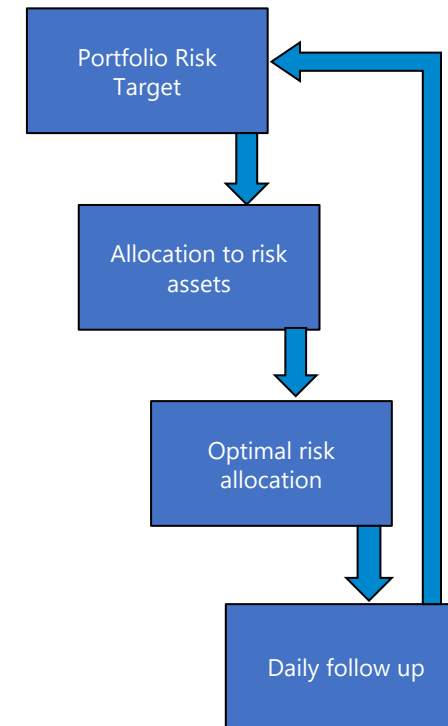
Portfolio optimisation

Independent | Transparent | Disciplined

Active Risk Allocation

Summary of process

- ☐ Decide on desired portfolio volatility band
 - 3.5-5%, 6-8% or 9-11% target
 - Depending on model input
- ☐ Allocate between risk assets and non-risk assets
 - Between 0 and 100% of portfolio may be allocated to risk assets
 - Depending on model input
- ☐ Calculate portfolio allocation
 - Allocating assets in a way that no asset class gives a too large risk contribution (almost Risk Parity)
 - Respecting overall volatility target
 - Respecting overall allocation target
- ☐ Daily follow up
 - Daily calculation of expected portfolio volatility
 - Daily supervision of OMRI and portfolio risk allocation
 - Corrective action if necessary

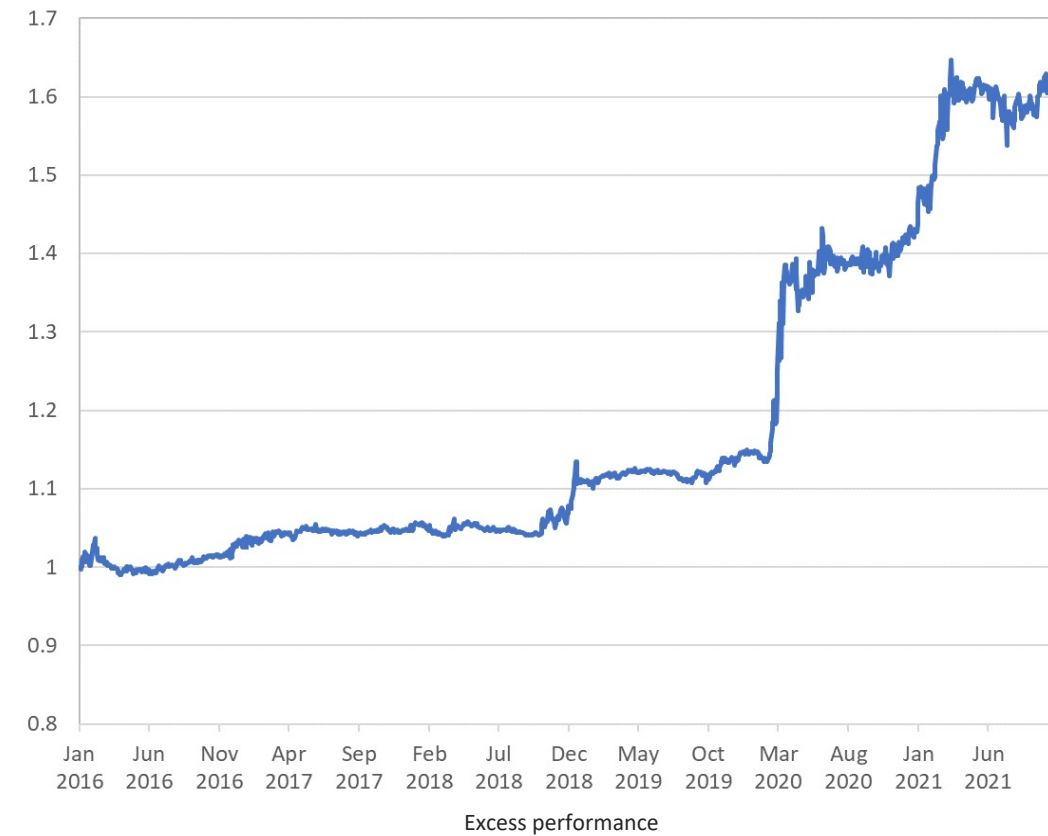
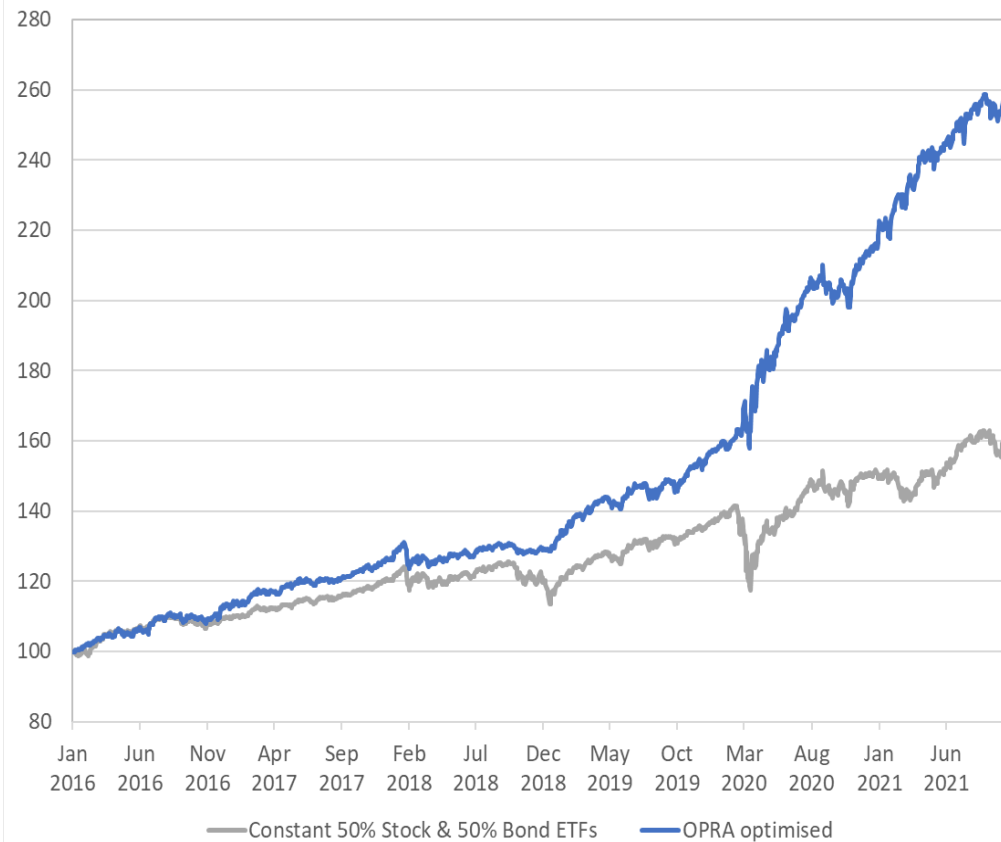


$$s = \sqrt{\frac{1}{N-1} \sum_{i=1}^N (x_i - \bar{x})^2}$$



ARA sample

Portfolio; 50% world stock ETF / 50% bond ETF



A simplified example of value added by just one optimiser (OPRA indicator)
No other other optimisers, no other constraints, daily rebalanced

ARA optimisation — IRG benchmark

IR Medium risk model portfolio							
Name	Asset	Class	Min	Mid	Max	ETF Proxy	ETF Name
IR Basis			20	25	35	Composite	Composite ETF
		Aktier-EU	50	75	100	XSX6 DE	db x-tracker Stoxx Europe 600
		Bonds-EU GOV	50		100	XGLE DE	Xtrackers II Eurozone Government Bond
		Bonds-DK MBS	50		100	Nyk dmb Compos	<u>Nykredit Danish Mortgage Bond Index</u>
		Bonds-HY	20		40	IHYG DE	iShares € High Yield Corp Bond
		Cash	0	25	50	Cash	Money market
IR Favoritter/IR Danske Aktier		Aktier-DK	15	25	35	BIKF DC	Danske Invest Index
			50		100	BIKF DC	Danske Invest Index
IR Vækstlande	63.8	Aktier-GEM	15	20	30	BRIC LN	iShares BRIC 50 \$ (Dist)
IR Erhverv		Bonds-HY	10	15	20	IHYG DE	iShares € High Yield Corp Bond
			50		100	IHYG DE	iShares € High Yield Corp Bond
			50		100	HYG US	iShares iBoxx \$ High Yield Corp Bond
IR Højrente		Bonds-HY	10	15	20	EMBE LN	iShares J.P. Morgan \$ EM Bond EUR Hedged
Danske obligationer	36.3	Bonds-DK	0	0	10	Nyk dmb Compos	<u>Nykredit Danish Mortgage Bond Index</u>
			100		100		

Defining the benchmark is necessary to evaluate quality of investment management and a mathematic imperative for a systematic investment optimisation process.

IR portfolio to follow the forwarded ARA script with ALL optimisers and as a rule monthly rebalancing.¹⁵

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